

C L A I M S

1. A filter assembly, comprising:
a core at least partially defining a
5 plurality of chambers and a storage chamber, wherein the
plurality of chambers are adjacent the storage chamber; and
a filter media having a first plurality of
pleats and a second plurality of pleats, wherein the first
plurality of pleats adjoin the second plurality of pleats, the
10 first plurality of pleats are distributed over the plurality of
chambers, and the second plurality of pleats are more compactly
stored in the storage chamber.
- 15 2. The filter assembly of claim 1, wherein the
core includes a saw tooth rack having a plurality of peaks and
valleys, which define the plurality of chambers.
- 20 3. The filter assembly of claim 1, wherein the
core includes a generally rectangular frame comprising a first
pair of frame members that are substantially parallel to each
other and a second pair of frame members that are substantially
perpendicular to the first pair of frame members, wherein the
25 saw tooth rack is pivotally coupled to the frame.

4. The filter assembly of claim 3, further comprising a living hinge that couples the saw tooth rack to frame.

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5. The filter assembly of claim 1, wherein the core includes a generally rectangular frame comprising a first pair of frame members that are substantially parallel to each other and a second pair of frame members that are substantially perpendicular to the first pair of frame members, wherein a first end plate is pivotally connected to one frame member of the first pair of frame members and a second end plate is pivotally connected to another frame member of the first pair of frame members.

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6. The filter assembly of claim 5, further comprising a living hinge that pivotally couples the first end plate and the second end plate to the generally rectangular frame, whereby the first end plate, the second end plate, and the frame comprise a unitary piece.

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7. The filter assembly of claim 5, further comprising a side panel attached to the filter media and being adjacent the second pair of frame members, wherein the side panel defines a hole adapted to receive a protrusion extending from the first end plate.

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8. The filter assembly of claim 7, wherein the protrusion is pivotal relative to the first end plate.

5 9. The filter assembly of claim 3, further comprising a side panel attached to the filter media, wherein the second pair of frame members defines a channel into which the side panel of the filter media is disposed.

10 10. The filter assembly of claim 1, wherein the first plurality of pleats and the second plurality of pleats are held substantially stationary.

15 11. The filter assembly of claim 1, wherein the first plurality of pleats are substantially equally distributed over the plurality of chambers.

20 12. The filter assembly of claim 4, further comprising a tie rod connected to the frame and being selectively engaged and disengaged from the saw tooth rack.

25 13. The filter assembly of claim 12, wherein the tie rod is pivotally relative to the frame.

14. The filter assembly of claim 13, further comprising a second living hinge that connects the tie rod to the frame.

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15. A filter assembly, comprising:

a core that includes a generally rectangular frame that defines an airflow opening therethrough, the core further includes a saw tooth rack having a plurality of peaks and valleys which at least partially define a plurality of chambers and a storage chamber, wherein the storage chamber is adjacent the plurality of chambers; and

a filter media having a first plurality of pleats and a second plurality of pleats, wherein the first plurality of pleats adjoin the second plurality of pleats, the first plurality of pleats extend across the airflow opening and are distributed over the plurality of chambers, and the second plurality of pleats are stored in the storage chamber adjacent the airflow opening.

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16. The filter assembly of claim 15, wherein the saw tooth rack is pivotally coupled to the frame.

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17. The filter assembly of claim 16, further comprising a living hinge that couples the saw tooth rack to frame.

18. The filter assembly of claim 15, wherein the generally rectangular frame comprises a first pair of frame members that are substantially parallel to each other and a second pair of frame members that are substantially perpendicular to the first pair of frame members, wherein a first end plate is pivotally connected to one frame member of the first pair of frame members and a second end plate is pivotally connected to another frame member of the first pair of frame members.

19. The filter assembly of claim 18, wherein the generally rectangular frame, the first end plate, and the second end plate are integrally joined to comprise a unitary piece.

20. The filter assembly of claim 18, further comprising a side panel attached to the filter media and being adjacent the second pair of frame members, wherein the side panel defines a hole adapted to receive a protrusion extending from the first end plate.

21. The filter assembly of claim 20, wherein the protrusion is pivotal relative to the first end plate.

22. The filter assembly of claim 18, further comprising a side panel attached to the filter media, wherein the second pair of frame members defines a channel into which the side panel of the filter media is disposed.

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23. The filter assembly of claim 15, wherein the saw tooth rack is one of a plurality of saw tooth racks.

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24. The filter assembly of claim 15, wherein the first plurality of pleats and the second plurality of pleats are held substantially stationary.

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25. The filter assembly of claim 16, further comprising a tie rod connected to the frame and being selectively engaged and disengaged from the saw tooth rack.

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26. The filter assembly of claim 25, wherein the tie rod is pivotally relative to the frame.

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27. The filter assembly of claim 26, further comprising a second living hinge that connects the tie rod to the frame.

28. A method of inserting a filter media into a core having a plurality of chambers and a storage chamber, the method comprising:

5 folding the filter media to create a first plurality of pleats and a second plurality of pleats;

inserting the first plurality of pleats in the plurality of chambers; and

10 inserting the second plurality of pleats in the storage chamber, wherein the second plurality of pleats are more tightly folded than the first plurality of pleats.

29. The method of claim 28, wherein the core includes a generally rectangular frame to which an end plate is
15 pivotally attached, and further comprising pivoting the end plate into engagement with the filter media.

30. The method of claim 29, wherein a latch is
20 pivotally joined to the end plate, and further comprising pivoting the latch into engagement with the filter media.

31. The method of claim 28, wherein the filter
25 media comprises a pleated air permeable material joined to a side panel, wherein the side panel is more rigid than the pleated air permeable material.

32. The method of claim 31, further comprising inserting the side panel into a channel defined by the core.

5 33. The method of claim 28, wherein the core includes a saw tooth rack that helps define the plurality of chambers.

10 34. The method of claim 29, wherein the core includes a saw tooth rack that helps define the plurality of chambers, and further comprising pivoting the saw tooth rack relative to the frame.

15 35. The method of claim 28, further comprising holding the first plurality of pleats and the second plurality of pleats substantially stationary.